

# Plant Maintenance Resource Center Maintenance Outsourcing Survey Results - 2001

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### Introduction

#### Overview

This survey was conducted during July and August 2001 by the Plant Maintenance Resource Center, through its website at [www.plant-maintenance.com](http://www.plant-maintenance.com).

29 responses were received, with the demographics being as follows.

#### Industry Sectors

The responses came from a variety of industry sectors, including:

Table 1 - Responses by Industry Sector

Industry Sector	Responses
Manufacturing-Petroleum, coal, chemical and associated products	4
Oil and gas extraction	3
Manufacturing-Metal products	3
Other	2
Mining-Coal	2
Manufacturing-Wood and paper products	2
Manufacturing-Other	2
Utilities-Water, sewerage, drainage	1
Utilities-Gas supply	1
Utilities-Electricity Transmission and Distribution	1
Utilities-Electricity Generation	1
Mining-Metal ore	1
Manufacturing-Machinery and equipment	1
Manufacturing-Food, beverages, tobacco	1

#### Organization Size

Respondent organizations were generally large or medium sized, as indicated by the following table.

Table 2 - Responses by Organization Size

Organization Size	Responses
Large(more than 100 crafts/tradespeople)	14
Medium(10 to 100 crafts/tradespeople)	13
Small(less than 10 crafts/tradespeople)	1
Don't Know	1

## Geographical Location

Responses were received from a variety of countries, with Australia being somewhat over-represented in comparison with other countries.

Table 3 - Responses by Country

In what country is your workplace?	Responses
United States	8
Australia	8
Indonesia	2
Canada	2
United Kingdom	1
South Africa	1
Singapore	1
Philippines	1
Other	1
New Zealand	1

## Use of Contractors

Respondent organizations spent around one-third of their maintenance budget on maintenance contractors, on average.

Table 4 – Expenditure on Contractors

% of workplace's total maintenance budget currently spent on Maintenance Contractors	Responses
2% to 5%	1
5% to 10%	3
10% to 20%	6
20% to 35%	5
35% to 50%	4
50% to 75%	3
75% to 100%	1
100%	1
Don't Know	2
N/A	3

## Job Position

A significant proportion of responses received were from those in Management positions.

Table 5 – Responses by Job Position

What is Your Job Role?	Responses
Maintenance Manager	12
Plant/Maintenance Engineer	6
Maintenance Foreman/Supervisor	2
Other	2
Maintenance Planner	1
Maintenance Technician	1
Production/Operations Manager	1
CMMS Support Professional/Officer	1

## Reasons for Using Contract Maintenance Services

The most commonly stated reasons for using contractors were:

- To increase labour productivity
- To reduce Maintenance costs, and
- To focus in-house personnel on 'core' activities

It is interesting to note that these reasons largely relate to cost reduction initiatives. In comparison, reasons such as obtaining specialist skills, and levelling fluctuations in workload appear to be of lower priority.

It is also interesting to note that the third of these most important reasons above requires an answer to the question of what activities are considered to be “core” activities. In our experience, the definition of what constitutes a “core” activity varies widely from organisation to organisation, however this issue was not explored in detail in this survey. More detailed discussion of this issue can be read in the paper available at [www.plant-maintenance.com/outsourcing\\_crit\\_issues.shtml](http://www.plant-maintenance.com/outsourcing_crit_issues.shtml).

A full list of the reasons given for using contractors is tabulated below.

Table 6 - Reasons for Using Contract Maintenance Services

Reasons for Using Contract Maintenance Services	Most Important Reason	Second Most Important Reason	Third Most Important Reason	Total
Increase labour productivity	4	3	2	9
Reduce maintenance costs	3	3	3	9
Focus in-house personnel on 'core' activities	3	2	4	9
Other	3	2	4	9
Reduce Management effort	2	2	3	7
Obtain specialist skills not available in-house	2	4		6
Level fluctuations in workload	2	1	2	5
Increase access to specialist equipment	3		1	4
Improve equipment uptime/performance	2	2		4
Reduce risk	2	1	1	4
Improve labour productivity	1	1	1	3
Don't Know		1	1	2
Improve work quality		1		1
Reduce influence of trade unions		1		1
Improve Environmental Performance		1		1
Keep pace with rapidly changing technology			1	1

## Key Contractor Activities / Roles

The most common uses for Maintenance contractors are for:

- Minor Capital Work
- Labour Hire
- NDT/Condition Monitoring, and
- Offsite overhauls and Repairs

Very few respondents indicated using Maintenance Contractors for Total Maintenance Services. For the purpose of this survey, Total Maintenance Services was defined as being the situation where the contractor assumes responsibility for maintenance planning and scheduling, supervision and labour provision, and also has significant input into the scope of maintenance work performed. This is an area that a lot of Maintenance contractors are pitching their marketing efforts at, yet the degree of uptake of this service seems to be very low. It is also interesting to note that few organizations outsource Shutdown Planning and Management – personally I know of a few organizations who have recently taken this activity back “in-house”.

Table 7 - Contractor Activities/Roles

Contractor Activity/Role	Use Contractors in this role?		
	Yes	No	N/A
Total Maintenance Services	4	22	3
Minor Capital Work	22	2	5
Labour Hire	22	2	5
NDT/Condition Monitoring	20	4	5
Shutdown Planning and Management	4	18	7
Offsite Overhauls and Repairs	21	4	4
Painting/Surface Protection	18	6	5

## Contractor Performance

### Performance Measures

The most commonly used measures of Contractor Performance (both formal and informal) were:

- Price/Cost
- Safety Performance
- Work Quality/Rework

The most commonly used formal measures of Contractor Performance were:

- Safety Performance
- Price/Cost
- Environmental Performance

The most important performance measures were considered to be:

- Safety Performance
- Price/Cost
- Equipment Availability

Interestingly, Equipment Performance, through measures such as Equipment reliability, and availability, are considered to be of less importance than price, even though, in many instances, the cost of poor equipment performance may significantly outweigh any savings made by reducing contractor costs.

The full results of the survey are tabulated below.

Table 8 - Contract Performance Measures

Measure	Used at Your Site - Responses					Average Importance*
	Yes - Formally	Yes - Informally	No	Don't Know	N/A	
Safety Performance	21	3	3		2	9.1
Price/Cost	17	9	1		2	8.3
Equipment Availability	8	12	5	1	3	8.3
Work Quality/Rework	5	18	4		2	8.1
Environmental Performance	11	10	5		3	7.8
Equipment Reliability	9	11	5	1	3	7.7
On-time performance	9	13	5		2	7.6
Cost Reduction/Improvement Initiatives	9	11	5	1	3	7.1
Industrial Relations Management	2	13	10	2	2	6.3

\* out of 10, where 10 is most important

### Benefits from Using Contractors

Overall, respondents felt that there were significant benefits from using contractors, with the greatest improvements being in the areas of:

- On-time Performance, and
- Equipment Availability

It is interesting to note that, although Price/Cost was seen as being of great importance (in Table 8), respondents felt that the benefits in this area that they have achieved to date are only moderate. It should also be noted that safety improvements were not always seen to exist, through the use of contractors – another area seen as being highly important in Table 8.

Table 9 - Performance Improvement from Using Contractors

Measure	Changes in Performance - Responses					
	Significantly Better	Slightly Better	No Change	Slightly Worse	Significantly Worse	No Opinion
Equipment Availability	4	12	4	3		6
Equipment Reliability	3	10	6	4		6
Environmental Performance	2	5	11	2		9
Industrial Relations Management	2	6	9		1	11
Safety Performance		8	8	4	1	8
Work Quality/Rework	3	6	7	5		8
Price/Cost	6	8	2	5	2	6
Cost Reduction / Improvement Initiatives	3	11	4	1	1	9
On-time performance	6	11	4	1	1	6

# Contracting Success Factors

Respondents considered that, when assessing the most successful maintenance contractors on their site, the most important factors in contributing to that success were:

- Contractor responsiveness
- Contractor Flexibility
- Quality of contractor frontline supervision
- Plant-specific knowledge and experience

One potentially disturbing aspect of this focus on responsiveness and flexibility, is that this may be required as a result of poor planning on the part of the client organization – while having a certain degree of flexibility is important, this flexibility comes at a cost – often a hidden one.

Low price was considered to be one of the least important factors in contributing to a successful outcome – despite the fact that labour productivity and costs were considered to be the most important reasons for engaging contractors (Table 6) . Of interest also is the observation that having performance incentives built into the contract was not particularly important, despite the emphasis that has been placed on this area by contract professionals in recent years.

In their comments, many respondents emphasised the importance of a competent, and stable, contractor site workforce. A number of respondents also made comments regarding the requirement for the contractor and principal to have a shared vision, common goals, and an understanding of conflicting objectives, and the associated need for clarity, yet flexibility, in contract management processes.

The importance of close working relationships, and true two-way communications were also emphasised by many respondents.

Table 10 - Contracting Success Factors

Success Factor	Average Importance*
Contractor responsiveness	9.0
Contractor flexibility	8.5
Knowledge and experience at your plant/site	8.4
Quality of contractor frontline supervision	8.4
Open, two-way communications between contractor and your organisation	8.1
Quality of contractor shopfloor personnel	7.9
Knowledge and experience of the equipment/production processes in your industry	7.8
Sound Contractor Safety Management Systems and Processes	7.7
Quality of Contractor Site Manager	7.6
Availability of contractor support facilities/workshops	7.6
Proactive approach from contractors	7.6
Local contractor presence	7.2
Sound Contractor Work Management Systems and Processes	6.9
Sound Contractor Environmental Management Systems and Processes	6.7
Measuring and managing contractor performance through appropriate KPIs	6.7
Contractor access to latest technology	6.5
Performance incentives built into the contract	6.5
Quality of support from the contractor's head/regional office	6.4
Low Price	6.3
Availability of engineering support from the contractor	6.3

\* out of 10, where 10 is most important.

# Views and Trends

## Expenditure on Maintenance Contractors

Over the last 3-5 years, there has been an increase in expenditure on Maintenance contractors at most sites.

Table 11 - Change in Expenditure on Maintenance Contractors (last 3-5 years)

Change in Site Expenditure on Maintenance Contractors over the last 3 to 5 years	Responses
Increased Significantly	7
Increased Slightly	11
Remained about the same	4
Decreased Slightly	3
Decreased Significantly	1
Don't Know	3

Over the next 3-5 years, the majority of respondents expect a slight increase in expenditure on Maintenance contractors.

Table 12 – Forecast Change in Expenditure on Maintenance Contractors (next 3-5 years)

Expected Change in Site Expenditure on Maintenance Contractors over the next 3 to 5 years	Responses
Increase Significantly	7
Increase Slightly	8
Remain about the same	7
Decrease Slightly	2
Decrease Significantly	2
Don't Know	3

## No of Contractor Organisations used

Over the last 3-5 years, there has been a slight increase in the number of contractor organisations used at each site. This is somewhat surprising, with the recent focus within many organisations on “strategic sourcing” in order to reduce the number of suppliers.

Table 13 - Change in Number of Maintenance Contractors Used (last 3-5 years)

Change in the number of Maintenance Contractor organisations working on site over the last 3 to 5 years	Responses
Increased Significantly	3
Increased Slightly	10
Remained about the same	6
Decreased Slightly	3
Decreased Significantly	3
Don't Know	4

Respondents expect the number of contractor organisations working on site, on average, to remain about the same in future.

Table 14 – Forecast Change in Number of Maintenance Contractors Used (next 3-5 years)

Expected change in the number of Maintenance Contractor organisations working on site over the next 3 to 5 years	Responses
Increase Significantly	5
Increase Slightly	5
Remain about the same	7
Decrease Slightly	7
Decrease Significantly	2
Don't Know	3

### Partnering/Alliancing vs Periodic Tendering

Most respondents considered contractor relationships based on partnering/alliancing type contract arrangements to be considerably more effective than traditional, periodic competitive tenders

Table 4 - Relative Effectiveness of Alliancing

Effectiveness (Out of 10)	Traditional, Periodic Competitive Tenders	Partnering / Alliancing
10	0	2
9	1	6
8	5	9
7	3	3
6	4	0
5	3	2
4	1	1
3	4	1
2	2	0
1	1	0
No Opinion	5	5
<b>Average</b>	<b>5.4</b>	<b>7.7</b>

This finding is consistent with the earlier findings regarding the importance of effective communication and contractor responsiveness in providing successful maintenance outcomes.



# Conclusion

In this survey, a number of key observations have been made, namely, that:

- Respondent organizations spent around one-third of their maintenance budget on maintenance contractors, on average. This indicates that the maintenance contracting market is substantial.
- The most commonly stated reasons for using contractors were:
  - To increase labour productivity
  - To reduce Maintenance costs, and
  - To focus in-house personnel on 'core' activities
- The most common uses for Maintenance contractors are for:
  - Minor Capital Work
  - Labour Hire
  - NDT/Condition Monitoring, and
  - Offsite overhauls and Repairs
- The most commonly used measures of Contractor Performance (both formal and informal) were:
  - Price/Cost
  - Safety Performance
  - Work Quality/Rework
- Equipment Performance, through measures such as Equipment reliability, and availability, are considered to be of less importance than price, even though, in many instances, the cost of poor equipment performance may significantly outweigh any savings made by reducing contractor costs.
- The greatest benefits from using contractors were seen to be in the areas of:
  - On-time Performance, and
  - Equipment Availability
- Safety and Cost improvements were not as evident.
- Respondents considered that, when assessing the most successful maintenance contractors on their site, the most important factors in contributing to that success were:
  - Contractor responsiveness
  - Contractor Flexibility
  - Competent, Stable Contractor workforce
  - Two-way Communication
  - Shared Goals
- Expenditure on Maintenance contractors, as a percentage of the total Maintenance budget has increased in recent years, and is expected to continue to do so in the near future.

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